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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,577	12/27/2004	Daniel Levner	904.0102.U1(US)	2523

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EXAMINER

PAK, SUNG H

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/519,577	Applicant(s) LEVNER ET AL.	
	Examiner Sung H. Pak	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/3/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 16-19 and 30 is/are pending in the application.
- 4a) Of the above claim(s) 9-15, 20-29 and 31-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 16-19 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/27/04, 5/16/05</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, claims 1-8, 16-19, and 30 in the reply filed on 3/3/06 is acknowledged.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Information Disclosure Statement

Information disclosure statements received on 12/27/2004 and 5/16/2005 have been considered.

Claim Objections

Claim 1 is objected to because of the following informalities: Claim 1 does not end in a period. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4, 16, 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Bismuth et al. ("Superimposed gratings WDM on Ge-doped silica on silicon planar waveguide")

Bismuth discloses an optical device with all the limitations set forth in the claims, including: at least two waveguides (Fig. 1) in at least one propagation layer of grating material, a first one of said waveguides adapted for transporting input radiation from a first input port to output radiation exiting from a first output port (waveguide depicted on the left side of the substrate in Fig. 1) and a second one of said waveguides transporting input radiation from a second input port to output radiation exiting from a second output port (any one of the waveguide depicted on the right side of the substrate in Fig. 1), and a one or two dimensional supergrating in a modulation layer of grating material for coupling input radiation propagating from one of said first and second input ports along a corresponding waveguide to the other of said first and second waveguides (Fig. 1);

In which said one or two dimensional supergrating couples input radiation in said first waveguide traveling in a first direction to said second waveguide traveling in a second direction substantially parallel to said first direction (one of the waveguide disposed on the right side of the substrate in Fig. 1).

Bismuth also discloses a device for processing optical radiation in a set of wavelengths comprising a set of waveguides having at least one input port and at least one output port (Fig.

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1); in which an input beam of radiation traveling on an input waveguide passes through at least one wavelength dependent supergrating coupler that couples a selected wavelength band in or out of the input waveguide, so that the remaining optical beam in the input waveguide has a wavelength range that has been added to or subtracted from by the selected wavelength band (Fig. 1; page 513);

in which the wavelength dependent supergrating coupler subtracts radiation in a wavelength subtraction range from said input beam (Fig. 1; page 513).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 3, 5, 7, 17, 19, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bismuth et al. ("Superimposed gratings WDM on Ge-doped silica on silicon planar waveguide") in view of Brinkman et al (US 6,393,172 B1).

Bismuth discloses an optical device with wavelength selective supergrating as discussed above, however it does not explicitly teach the use of array of controlling means for accepting control signals and altering the refractive index of supergrating as claimed in the instant application.

On the other hand, the use of plurality of controlling means for altering the refractive index of controllable grating element for optical switching between plurality of input and output waveguides is well known in the art, for example as taught by Brinkman (Fig. 38, 40; column 59 lines 8-60). Such arrangement is considered advantageous and desirable in the art because optical grating switches allow for efficient and compact means for routing wavelength-selective optical signal to desired optical ports for effective signal routing. Therefore, it would have been obvious to a person of ordinary skill in the art to modify the wavelength selective device of Bismuth to have grating switching arrangement of Brinkman.

Claims 1-8, 16-19, 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Levner et al. (US 2003/0007733 A1).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the

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inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Levner discloses an optical device with all the limitations set forth in the claims, including: at least two waveguides (Fig. 3A) in at least one propagation layer of grating material, a first one of said waveguides adapted for transporting input radiation from a first input port to output radiation exiting from a first output port (Fig. 3A) and a second one of said waveguides transporting input radiation from a second input port to output radiation exiting from a second output port (Fig. 3A), and a one or two dimensional supergrating in a modulation layer of grating material for coupling input radiation propagating from one of said first and second input ports along a corresponding waveguide to the other of said first and second waveguides (Fig. 3A);

In which said one or two dimensional supergrating couples input radiation in said first waveguide traveling in a first direction to said second waveguide traveling in a second direction substantially parallel to said first direction (Fig. 3A);

In which the supergrating couples input radiation in the first waveguide traveling in a first direction to the second waveguide, traveling in a second direction opposite to the first direction (Fig. 3A);

Wherein the first and second waveguides are symmetric and said supergrating comprises a central portion between the first and second waveguides having a first pattern of high and low values of index refraction and first and second outer portions having a second pattern of high and

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low values of index of refraction having the opposite sense to said first pattern, whereby said supergrating suppresses back reflection in the first and second waveguides (paragraph 0078);

In which the supergrating comprises an array of controllable means, responsive to set of control corresponding pixels in said array in at least two modes including a first mode in which said device couples input radiation in said first waveguide to said second waveguide and a second mode in which said device couples input radiation in said second waveguide to said first waveguide (Fig. 9);

In which the supergrating comprises an array of controllable means responsive to a set of control signals that are adapted to switch radiation of any of number of different wavelengths between said first and second waveguides in said first and second modes in response to corresponding values of said control signal, whereby said device maybe controlled to pass radiation in any one of number of wavelengths from any of said input ports to any of said output ports, thereby forming a wavelength-dependent supergrating 2x2 coupler (paragraphs 0118-0120).

Conclusion

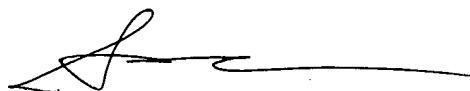
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2002/0154410 and US 6,657,786 disclose supergrating structures for routing optical signals in plurality of optical waveguides.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571)272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sung H. Pak
Primary Patent Examiner
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